**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Per: \_\_\_\_\_\_**

**U11 CW #2** *Exponents pt. 2 –Zero and Negative Exponents*

**Directions:** Determine the exponent that should go in each box to make the equations true.

|  |  |  |
| --- | --- | --- |
| 2 = 8 | 42 = 2 | 3 = 9 |

**Directions:** Determine where the parenthesis should go in each term to make the equations true.

|  |  |  |
| --- | --- | --- |
| * 2 4 = 16 | * 2 4 = -16 | * 3 6 = 729 |

**Directions**: Write the expanded notation of each of the following terms. Then using your calculator determine the simplified numerical value.

|  |  |  |
| --- | --- | --- |
| **Quotient** | **Expanded Notation** | TI-30XIIS**Numerical Value** |
|  |  |  |
|  |  |  |
|  |  |  |

|  |
| --- |
| **Exponent Rule:** In general, if x is any variable, number, or term and raised to the  power of zero (0) then the variable, number, or whole term  is equal to zero (0).  **Checklist with a Base raised to the power of 0:**  1. Only the term that is raised to the power of \_\_\_\_\_\_\_ equals \_\_\_\_\_\_\_\_\_.  2. If there are any other variables or numbers, \_\_\_\_\_\_\_\_\_\_\_\_ by \_\_\_\_\_\_\_\_  and simplify the rest of the term.  **Examples:**  or or |

Let’s Practice what we just learned: Complete each part of the table.

|  |  |  |
| --- | --- | --- |
| **Problem** | **Factors** | **Simplified Exponential Notation** |
| 2x0 |  |  |
| -22a3b0c |  |  |
| (17)0x4y |  |  |
| (123x24)0 |  |  |

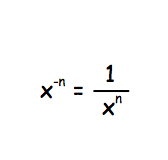
**Directions:** Evaluate the following. Show your work when possible.

|  |  |  |
| --- | --- | --- |
| a) 80 | b) (100000000)0 | c) (xyz)0 |
| d) (-4)0 | e) -40 | f) x0 |
| g) ab0 | h) 3k0 | i) 12a0 + 42 |
| j) 30 + 22 - 4 | k) 23x0 + 17y0 | l) |

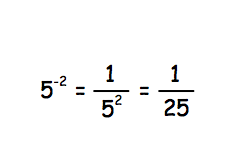
**Negative Exponents**

|  |  |  |
| --- | --- | --- |
| **Quotient** | **Factors** | **Simplified Quotient** |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

|  |
| --- |
| **Exponent Rule:** **Negative Exponents**  For any integer n and any nonzero number a,  **Examples:**   or |

**Directions:** Rewrite each of the following in positive exponential notation.

|  |  |  |
| --- | --- | --- |
| a) | b)  6 | c) |
| d) | e) | f) |

**Directions:** Evaluate each of the following expressions.

|  |  |  |
| --- | --- | --- |
| a)  3 | b) | c) |